The Rise of Machine Learning in Marketing: Goal, Process, and Benefit of AI-Driven Marketing

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Abstract: This independent research report describes the goal, process, and benefit of AI-driven marketing. It explores how marketing leverages machine learning models to automate, optimize, and augment the transformational process of data into actions and interactions with the scope of predicting behaviors, anticipating needs, and hyper-personalizing messages.

RESEARCH REPORT

THE RISE OF MACHINE LEARNING IN MARKETING

Goal, process, and benefit of AI-Driven Marketing

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EXECUTIVE SUMMARY

Machine Learning *(ML)* is developing under the great promise that marketing can now be both more efficient and human. Cognitive systems, embedded or not into marketing software, are powering every single functional area of marketing and each step of the consumer journey.

AI-driven marketing leverages models to automate, optimize, and augment the transformational process of data into actions and interactions with the scope of predicting behaviors, anticipating needs, and hyper-personalizing messages.

Modern marketers utilize user data to deliver hyper-individualized and hyper-contextualized brand communications, in which each subsequent message builds on previous customer interactions. These interactions are seen not as a final stage of a consumer journey, but as a way to orchestrate future experiences in a satisfactory virtuous cycle.

Successful ML-powered companies turn data into seamless interactions with consumers using semi-automated and real-time processes. These predictive and augmented experiences build deeper one-to-one relationships with consumers, improve omni-channel customer experience, and drive product differentiation.

Designing an AI strategy requires managers to systematically evaluate marketing needs in terms of automation, optimization, and augmentation in relation to the searched benefits of prediction, anticipation, and personalization. Balancing machine-inspired goals with expected benefits forces managers to strategically assess their organization to redesign roles and responsibilities while adequately defining the division of tasks between humans and machines.

This report, developed with the support of 30+ international experts, lays out a model for the definition of AI-driven strategies within the marketing context. And, it explores the critical elements of what, how, and why to infuse AI into the sequential steps of a marketing process.

Asking a manager "are you using AI?" in a few years from now will be like asking "are you using the computer?"

Jim Sterne, Director Emeritus Digital Analytics Association

DIFFUSION OF MACHINE LEARNING

Marketing professionals face increasing complexity due to the explosion of digital and data touchpoints, as well as unprecedented consumers' expectations in terms of interaction, content, and offer personalization. Such a degree of complexity is driving the adoption of a large variety of marketing software that marketers require to turn the vast array of historical data into actionable insights. Scott Brinker, VP Platform Ecosystem, HubSpot said, "AI algorithms and technologies are going to be deeply embedded at every layer of what the marketing software is." Definitely, machine learning will leave no area of marketing untouched. Gianluca Ruggiero, CEO of Massive, agreed that "We must see AI as an all-encompassing technology that is applied to every single field of marketing." At the same time, machine learning models are being used to power and shape every step along the consumer journey.

Inside marketing technologies

According to Gartner, marketing technology represents the highest marketing expense, even above labor cost, accounting for 29% of the CMO budget[1]. The excitement around artificial intelligence has leaped into the field of marketing technology *(MarTech)*, with all the major software providers claiming their ability to make marketing smarter and faster, but, most of all, more relevant. More than 7000 software applications empower every aspect of a consumer journey and encourage seamless execution[2]. Besides the number of solutions, marketing technology is also growing in its level of sophistication as intelligent algorithms are becoming core to these services.

In addition to the so-called "AI-first" software, which natively incorporates cognitive techniques such as machine learning and deep learning, other "traditional" enterprise solutions are infusing artificial intelligence as part of their natural product development *(see Sensei for Adobe or Einstein for Salesforce)*. IBM's Watson, for instance, was initially created for various purposes but it is increasingly leveraged to fulfill marketing goals. Other standalone software applications follow a similar path with players like MailChimp or Hootsuite upgrading their services with smarter algorithms. Providers, such as Shopify or Hubspot, have developed app marketplaces with thousands of vendors offering perfectly integrated solutions, from SEO to loyalty programs, some of which incorporate ML models. As Claudio Crivelli, Director Innovation & Transformation of Salesforce, said, "ML is a layer embedded in any marketing technologies offering huge potential to any organizations, making employees more productive and customers happier."

An emerging marketing paradigm sees the effect of AI coming from two parallel exogenous and endogenous forces *(Figure 1)*. Companies receive a direct benefit from proactively implementing an AI strategy that defines how models, whether they are built internally, bought from third-parties, or rent "as-a-service," respond to specific business needs. Firms may also indirectly benefit from the use of marketing technologies powered by AI components. In other words, even if a company is not investing in building AI capabilities, its marketing department might be already benefiting from recent AI advancements deployed throughout its marketing stack.

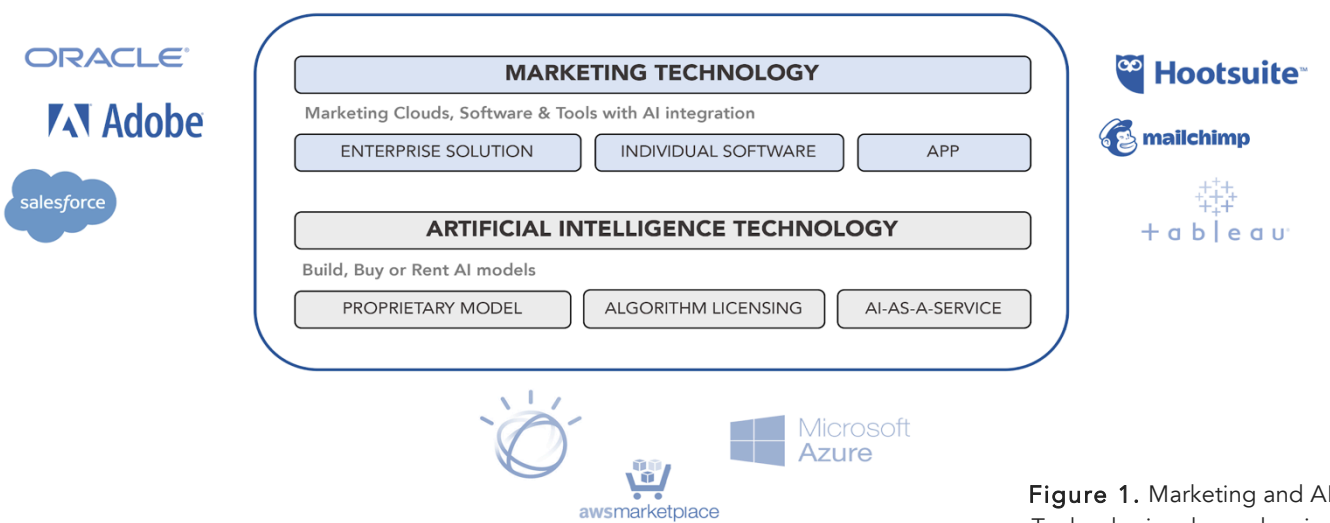


Figure 1. Marketing and AI Technologies dependencies

Martin Fabini, Chief Technology Officer at ti&m, argued, "Not having an AI marketing strategy in place does not mean that you are not actively using ML. One can have great benefits from standard applications although their functioning represents a 'black box' for your organization". Clearly, marketing and AI technologies are profoundly affecting each other and, combined, are contributing to the rise of ML in Marketing.

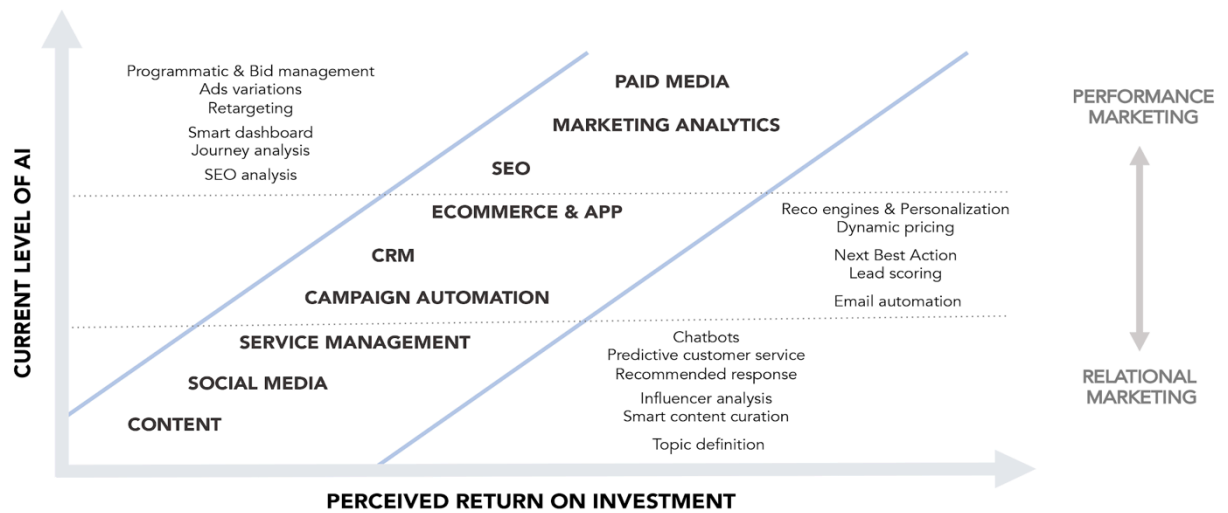
Across functional marketing areas

AI is affecting every single functional area of digital marketing, from social media to paid media. Different functions show, however, different levels of both technical sophistication and financial results from the use of ML applications *(Figure 2)*. Today, managers perceive that infusing AI and ML in the field of paid media, marketing analytics, and SEO *("performance marketing")* provide the highest return on investment.

Maurizio Miggiano, Head of Data & Analytics at Mediacom, confirms that the most celebrated case in ML for marketing is the so-called "programmatic media buying," which enables advertisers to reach consumers with highly-targeted banners based on their past behaviors. He said, "It is rather common to see a double-digit optimization of the marketing budget thanks to in-built algorithms – or even higher with sophisticated custom algorithms." Other use cases that collocate AI in traditionally human-intense activities, such as content creation, social media, and service management, characterized by close relationships between consumers and brands, are perceived to provide a lower return on investment. According to Andreina Mandelli, Professor at SDA Bocconi, "Chatbots are the classic example of a 'hype' as they often don't deliver what they promise. This creates disillusion in consumers which, in the short-term, might go back to speaking with humans rather than machines." Being that these dynamics are fast changing, several experts already predict a broader usage of machine learning for creative and relational activities in the near feature.

A BCG study commissioned by Google shows that, within the same group of applications, the economic results are extremely variable[3]. A test-and-control experiment involving six large brands across Europe showed the difference in online advertising performance in terms of cost-per-action *(CPA)* when ML-driven bidding, creative optimization, advanced targeting, and attribution are preferred to the manual process. The results highlight wide variation not only among single activities, automated bidding vs. advanced audience targeting, for instance, but also from campaign to campaign. For example, audience targeting with artificial intelligence resulted in a CPA drop, ranging from a median of 8% to best practice of 27%, and automated bidding reduced CPAs by a median of 9% *(good)* to 44% *(exceptional)*. In other words, studies show positive results when using ML for performance marketing. However, it is challenging to establish the general effectiveness of these technologies as the ROI largely varies by activity, company, and, ultimately, the data mindset of the organization.

Figure 2. AI sophistication and ROI across functional areas



Along consumer journeys

AI is infused at different stages of the consumer journey and requires individual, yet coordinated implementations. At Amazon, algorithms are shaping the shopping experience at each step of the journey, from "passive search" to "re-engagement". Besides the classic recommendation and re-targeting algorithms, Amazon has introduced new ML-driven services such as "programmatic sampling" to trigger consumer awareness of new products *(Figure 3)*. This model enables companies to target a precise audience with a free product sample. When this feature is used in combination with retargeting advertising, the average conversion to sale increases by 15%[4].

Although we can expect incremental usage of consumer-facing applications used simultaneously, like in the case above, managers need to realize that human intervention in each workflow largely varies depending on the defined marketing goals. As Jim Sterne pointed out, "You cannot write one algorithm that works for the whole marketing process. Instead, you use a variety of algorithms to create a variety of models that solve a specific problem with a specific data set. You solve that problem for a period of time, and then you need to change it in order to get even more improvement."

GOAL OF ML FOR MARKETING

AI enables marketers to amp up automation, optimize processes, and augment workers in ways that make our lives as employees, customers, and family members a whole lot better. Marketing activities are partially automated for routine tasks, optimized for nonroutine functions, and augmented for complex decisions that require employees and machines to build on each other's strengths. As managers become more familiar with cognitive technologies, they increasingly experiment with business solutions that combine elements of AI automation, optimization, and augmentation. According to Jim Sterne, "Definitely automation, optimization, and augmentation are the goals of AI. However, automation represents a key priority for many managers. If there's something I can automate, that's where I want to start. I need to make my process as efficient as possible."

Automation

Every business carries some inefficiencies that can be replaced by high-performing algorithms. Companies have traditionally automated activities to reduce the costs of human labor. Today, marketing automation has effectively become more than a cost-cutting mechanics, with the hype shifting towards the automation of customer experience. Companies have the opportunity not only to automate internal processes invisible to consumers, such as segmentation and targeting; they can also deploy solutions that delight customers with proactive and automated services.

Several companies are innovating by pushing the boundaries of customer-facing automation. **Vodafone** empowers users with AI-fueled self-service solutions.

Figure 3. AI-powered consumer journey of Amazon.com *(adapted from Hackernoon, 2018)*

The chatbot "TOBi" provides personalized recommendations with a +100% conversion rate compared to the Vodafone website and answers key requests with an 80% resolution rate[5]. Content automation is increasingly responsible for the creation, curation, and distribution of brand messages. **Bol.com** is using Google's automated bidding features in display and video advertising[6]. The automated bid system outperformed the manually optimized campaign with a 38% improvement in customer acquisition costs and an estimated ten hours saved monthly per team member. Similarly, automated recommendations use predictive algorithms that account for an estimated 35% of **Amazon**'s revenue[7] and 80% of the movies watched on **Netflix**[8].

Because algorithms can automate ongoing decisions at scale, ML represents a very potent tool for companies seeking to interact with consumers efficiently. According to Gartner[9], by 2020 customers will manage 25% of their relationship with an enterprise without interacting with a human. **Duplex**, Google's artificial intelligence assistant, can independently handle service requests, such as booking an appointment or managing personal agendas. Federico Gobbi, Founding Partner at the AI Marketing Association, noted: "With the deployment of similar technologies, more customers will be unknowingly talking to a machine."

As the understanding of AI advances among managers, these models become embedded in every business activity, and the integration with other AI systems increases the overall level of automation. Companies like **Amazon** bring excellent examples of automated AI strategy at the corporate level. Whenever the sales forecasting system based on AI detects the growing popularity of an item, several actions are triggered automatically. Amazon updates the inventory forecast and optimizes the supply chain system across warehouses. As a consequence, the final users will see more recommendations of the popular item at an adjusted *(and dynamic)* price. Based on the outcome of this "marketing campaign," the sales forecast will be updated again.

Optimization

Enterprises are using artificial intelligence algorithms to optimize processes that reduce overhead, decrease turnaround time, and improve output. Every marketer can identify countless opportunities to infuse AI into the brand building process to maximize practices of consumer acquisition and retention. An AI-enabled marketing software allows marketers to engage with consumers across channels and provide optimized customer journeys without a substantial increase in manual work. In fact, by reducing the time spent on segmenting customers and developing targeted campaigns, cognitive technologies can dramatically increase the productivity of entire marketing departments.

> **I always say, 80% of the work can be done by a computer. The last percent must require human intervention, and then you create something extraordinary. I think we are entering a beautiful world of human-machine interaction. The machine does the heavy lifting on identifying the salient elements, and then a human mind puts the salient elements together to create a masterpiece.**
>
> *Dr. A. K. Pradeep, CEO at MachineVantage*

An example of AI-optimized experience is offered by **Olay's** Skin Advisor, a deep learning powered app, that analyzes a woman's face to determine her "skin age" and recommend the best product among hundreds of different variations[10]. After the introduction of the personalized Skin Advisor, Olay reported to having doubled its conversion rate while engaging with 4 million consumers[11]. **Uber** predicts the rider's destination with over 50 percent accuracy and provides context-aware suggestions that facilitate frictionless experiences[12]. Lowe's rolled out a retail service robot called **LoweBot** to help customers by answering simple questions in 70 languages while employees focus on added-value services[13]. Because of its ability to effectively navigate the store, LoweBot can scan the shelves in search of incorrect prices, misplaced products, and out-of-stock items.

For some marketers, optimization means to focus efforts on strategic interactions with consumers while reducing non-strategic ones. Phasing out emails in favor of real-time customer-agent communications, like chatbots, is a definite step in that direction. In the optimization

process, a machine might help employees to surface unknown issues and optimize real-time interventions. German Ramirez, Founding Partner of The Relevance House, suggests that optimization will be a key driver to reach a significantly more granular approach to targeting. He said, "I have seen a fair amount of cat-food advertising in my life and I do not own a cat or plan to own one. Every single penny invested in having me watching an ad for anything related to cat food was wasted."

Although AI algorithms are usually automated once in operation, their development, installation, and training remain highly technical, research-intensive, and human-centric activity. Humans play a strategic role in the ongoing fine-tuning of AI systems that lead to optimized processes. In fact, AI is not a "set-and-forget" technology as models are continuously tuned manually, especially when natural language processing is involved. No matter how sophisticated algorithms become, there will always be the need for human-to-human communication to supplement AI technology.

Augmentation

Algorithms can help teams that operate in a traditional way to get more out of their marketing effort by adding layers of intelligence. In some organizations, AI augments rather than automates activities and processes. Javier Guillo' Lopez, Digital Business Development Watson at IBM said, "Augmentation is the main goal and it's what all our technology is about. AI is not about replacing people but enabling all marketers to work better, faster and smarter."

An effective explorative AI project begins with an understanding of what human beings and machines do well. Human beings can usually perform abstract thinking outside a specific context better than machines. The ability to deal with ambiguity, reframing research questions, and applying common sense are skills that machines are not expected to match, at least in the near future. On the other hand, algorithms are faster and more accurate in processing data and provide factual solutions in a well-defined context.

An increasing number of organizations believe in the coexistence of machines and humans. Capgemini found that 86% of those managers implementing AI solutions at scale firmly believe that machines can greatly augment human output[14]. Overall, it is rare to observe machine learning systems completely replacing human jobs and processes. The declared business goal of most companies is often not to reduce headcount but to handle the explosion of customer interactions without adding staff. In fact, the current best practice in marketing organizations is to let AI fulfill basic and repetitive tasks while employees work on more complex customer solutions that require empathy and problem-solving. "Just a few months ago, most of the discussion around AI was around the concept of automation, but now managers have come to realize that augmentation is more powerful and more realistic," said Thomas Zweifel, Head of IT Consulting at AdNovum.

In most cases, machines enhance a human's ability to draw conclusions. Contact center operations are adopting AI to streamline inquiry collection and resolution. The latest AI-fueled platforms can extract relevant pieces of information from both verbal and textual conversations in real-time to swiftly capture popular issues, suggest next best action to agents, and predict the likelihood of a customer to churn. Salesforce's **Einstein** leverages rules-based and predictive models to provide agents with contextual recommendations and offers for customers. These "next best actions" suggested to employees, such as "give free shipping" or "offer zero percent financing" lead to higher customer loyalty and upselling opportunities[15].

As Niklas Kolster, CEO of Windsor.ai, noted, "Some marketing activities are already fully automated like in the case of recommendation engines, others are generally optimized like bid management, segmentation, and targeting, while others like 'next best actions' are clearly augmenting managers." Algorithms can balance the amount of time agents spend on more complex issues versus answering simple questions. Examples include the service provider **Botmind** that helps companies to deliver better customer experience combining human and artificial intelligence through the same live chat. Whenever the bot is facing new issues that require conducting extensive unstructured dialogues, they will immediately transfer the concern to an individual. This hybrid process results in higher consumer satisfaction and significant cost reduction. Similarly, **Userbot** built a customer care bot, not with the intention to bypass human-to-human interactions entirely, but rather to advise agents on how to improve

their service performance. In these examples, employees remain in charge while driving higher efficiency thanks to the machine's support.

PROCESS OF ML FOR MARKETING

AI contributes to automating, optimizing, and augmenting three fundamental marketing processes: data collection, insights gathering through data analysis, and customer engagement. Modern marketing builds on intelligence technologies to capture relevant user data from the interactions with the brand. The benefit for the user is better assistance on immediately expressed needs and the anticipation of the unexpressed ones, from a longer-term perspective.

The process of personalization is a continuous loop[16] that offers companies the chance to engage consumers one-to-one and to build self-reinforcing relationships[17]. Companies continuously improve their personalization processes through an iterative feedback loop, resulting in the "virtuous cycle of personalization"[18]. However, Dr. However, Dr. Christian Spindler, Founder and CEO of Data Adead Analytics, warns that managers may have different opinions on what type of personalization is appropriate at each moment, which opens up for a big debate. Generally speaking, personalization constitutes an iterative process that can be defined by the three stages of the understand-deliver-measure cycle. Rolf Knöpfel, Migros Bank's Chief Marketing and Innovation Officer, said, "We can prove that this process works. Our marketing spending efficiency for specific campaigns doubled in the past year by simply shifting to a data mining mindset and applying rule-based algorithms."

> **A feedback loop incrementally produces higher personalization. We all love 'personalization' and the possibilities thanks to ML are limitless. However, managers need to be ready to address the question, 'How much is too much?'**
>
> *Andrew McStay, Professor at Bangor University*

An "AI-first" strategy needs to consider why and how to strategically infuse AI in consumer-focused data collection, promotional campaigns, and customer interactions. The creation of unique brand experiences requires marketers to turn any relevant user data into action *(or "campaign")*. Every customer reaction to a predefined campaign, like a commercial product launch via email, produces a series of interactions on different touchpoints. For instance, a call-to-action contained in the message, "book your test drive," will produce interactions with users on social media, store, and contact center. Every single interaction between the brand and the user represents a new set of individual data, explicitly or silently collected *(see cookies)*. A company must capture, structure, and analyze this information to enrich the individual's profile. This central idea of data-driven marketing, captured in *Figure 4*, coupled with ML makes the data-to-action-to-interaction loop shorter and smarter. These three sequential steps of AI-powered relationships are profoundly interlinked and require a sound integration of technologies and processes.

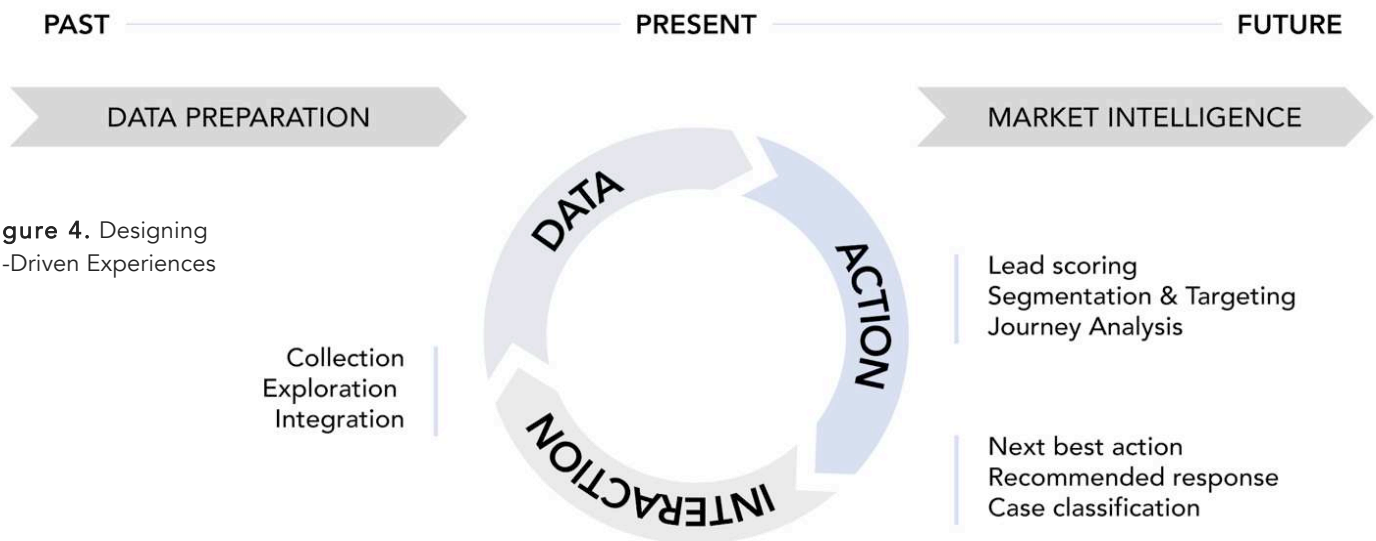


Figure 4. Designing AI-Driven Experiences

(elaboration from Mari & Rohner, 2016)

According to Jim Sterne, "This figure exactly shows how the machine learns. You create a model, it runs tests, and it brings in results from interactions. It constantly updates its data to action process. However, the rate of improvement will stop, at some point, and the model will stay at that plateau until you change something."

Data

Cognitive technologies require the use of customer-specific data in order to deliver unique brand experiences. AI algorithms are not natively "intelligent;" they learn inductively by analyzing data. Artificial intelligence helps companies to automate, optimize, or augment the process of data collection, analysis, and storage. Sasha Srdanovic, Principal Solution Specialist Data Platform and AI, said "AI can help to improve the data quality by automatically screening and checking data pools and databases. You can, for example, avoid duplicates or help humans to consider different data capturing scenarios."

In the future, no company is expected to succeed without making strategic use of the collected data. However, there are still a few myths to bust when it comes to data. The biggest data-related misconception says that sophisticated ML models can provide valuable business solutions even with insufficient data. AI is often described as a data-hungry discipline because meaningful data is a prerequisite for its exceptional performance. "For a long time, data was not being collected with AI and machine learning in mind. So, usually, data quantity is not the main problem, but rather the quality of data," noted Erik Nygren, AI Researcher at SBB.

Contrary to what marketers might think, data collection, integration, and preparation are far more time-consuming than building a machine learning model itself. As Scott Brinker explained, "For AI to work, you have got to have good data sets and clean data, and now with things like GDPR it is not only good and clean data, but it is also 'compliance data'. So, there is a 'big data mission' many companies are still getting their arms around."

Another common belief says that once a machine-learning model is automated, it continues to trigger campaigns over time without human control. The so-called "garbage in, garbage out" syndrome greatly affects machine-learning algorithms. Since the environment external to the model is dynamically changing, key business users need to review the model and provide new data sets regularly. This is the only way for a self-learning system to avoid biased data that may lead to dangerous outcomes.

Action

Data needs to be envisioned as a source of both action and self-improvement. Algorithms can absorb live data, process it, and then deliver real-time actions. Among the others, artificial intelligence helps companies to automate, optimize, or augment the process of scoring, targeting, and campaigning. Maurizio Miggiano from Mediacom said, "Marketers can apply ML to data in order to reverse-engineer digital consumer journeys to determine which tactics and strategies have previously led to a positive outcome." Delivering unique communications at scale requires marketers to move from classic segmentation to advanced techniques that, powered by machine learning, leverage smart scoring to build audiences and predict each customer's likelihood to convert. Peter Gassmann, Chief Consulting Officer of AdNovum warned, "Having data scientists play around with data may produce good insights but bringing these into action requires a much broader organizational effort."

Turning the collected data into engaging campaigns produces a positive effect on the overall customer experience. Predictive campaigns require personal data in return for a personalized shopping experience and product recommendations in line with the user's expectations. On the one hand, more users understand the importance of sharing personal information in the value-exchange process. On the other hand, only 1% of the gathered consumer data is reported to be analyzed, i.e., to produce any insight or strategic action[19].

> **If I am a small company selling online $100 worth of products a day, I can benefit from the AI system Shopify 'Kit' that recommends 'next best actions' even though I only have 50 daily visitors. Kit looks at their behavior compared to other behaviors across thousands of stores. That's how the algorithm creates value for me.**
>
> *Jim Sterne, Director Emeritus at DAA*

The result of un-analyzed, underleveraged data does not only represent a missed opportunity to deliver modern experiences, but it also leads to consumer dissatisfaction. This is why digitally mature organizations build data infrastructures capable of gathering consumer specific insights that generate unique offerings. Dr. A. K. Pradeep, CEO at MachineVantage, said, "The only way brands are going to survive is creating a meaningful and rich consumer experience. It's in that creation of consumer experiences that ML and AI come in."

Interaction

Interactions are at the heart of meeting the elevated expectations of today's connected customers. Users expect companies to provide intelligent, personal experiences every time this is needed. In particular, artificial intelligence helps companies to automate, optimize, or augment the process of generating meaningful interactions anytime and anywhere, while delivering the best next product, content, and offer.

Predicting the evolution of an interaction on countless channels requires managers to know precisely why, when, and how to engage with consumers. AI-enabled marketers are already counting on algorithms to drive deeper engagement with customers along the value chain. These managers have the opportunity to offer unexpected and delightful experiences that consumers did not have time to desire yet. "Those companies that are managing this process with success have built real-time operations," said MarTech consultant Yusuf Balcilar.

However, as Sven Blumenstiel, Chief Information Officer of Sonova Group suggested, "There are limited examples on how we use machine learning in the action-to-interaction phase, and these are often not fully automated." Brands earn trust from customers every time they successfully predict wishes and timely deliver relevant offers. When AI supports interactions, the ability to build trust in direct-to-consumer relationships allow companies to be less dependent on centralized voice platforms like Amazon Alexa or Google Home. In this respect, Lorenzo Farronato, VP Marketing Communications at Swarovski, argued, "My problem is not necessarily to pay Alexa or similar platforms to reach my consumers but that I do not have individual-level data needed to develop the relationship with consumers further."

BENEFIT OF ML FOR MARKETING

The interest of marketers for machine learning is at least threefold. In fact, the vast majority of the current use cases can be classified based on the technology's ability to 1) predict consumer behaviors, 2) anticipate consumer needs, and 3) hyper-personalize messages. Sasha Srdanovic from Microsoft said, "ML in Marketing is really about predicting what the next consumer move might be and anticipating what their current and future requirements are. The overall objective is having a personal, individual, and seamless interaction with the customer you are serving."

> **Prediction, anticipation, and hyper-personalization are an integral part of what marketing is going to be. Marketing managers will truly use the tools of AI and machine learning to understand the drivers of the non-conscious human mind which is responsible for 95% of consumer behavior.**
>
> *Dr. A. K. Pradeep, CEO at MachineVantage*

Prediction

Predicting consumer behavior means providing the best value proposition at the right stage of the consumer journey. Marketers come to realize that traditional marketing tools are unable to keep pace with the velocity, variety, and volume of data. Machines can help managers in reducing today's level of complexity in cross-channel customer engagement and make more accurate consumer behavior predictions. As an example, the German e-commerce merchant Otto uses an AI model that predicts what will be sold within 30 days with 90% accuracy[20]. This system allows Otto to automatically purchase more than 2 million items per year from third-party brands while speeding up deliveries to customers and reduce returns. "Being able to find out the need of a customer before he realizes it by himself is a huge advantage. As a marketer, you can show potential customers all of your intelligence. This translates into caring," said Dalith Steiger-Gablinger, Founding Partner of SwissCognitive.

Anticipation

Anticipating needs affects the offering of the best products and services at the right price. Managers exploit intelligent software with the intent of creating consumer-centric and service-oriented organizations. ML enhances the business objective of anticipating consumer need, as required to differentiate services and re-architect business models from the ground up. For instance, **Netflix**[21] develops original TV shows analyzing creative elements of successful movies at a granular level through the lenses of AI. This practice doubled the success rate of original shows versus traditional ones *(from 40% to 80%)*. According to Cosimo Accoto, Research Affiliate at MIT, "Digitally mature organizations fulfill consumers needs by using future consumer data *(prediction)* to anticipate consumer behavior in the present time."

Hyper-personalization

Message hyper-personalization is the delivery of relevant messages at the right time and channel. AI marketing enables the collection and analysis of data, generation of insights, and definition of actions that more effectively reach the individual.

According to Sasha Srdanovic from Microsoft, "Machine learning helps to move away from former customer segmentation and drive real-time automated segmentation. We understand what the customer is looking for right now and what he might be interested in next." Designing hyper-personalized experiences that drive relevancy has become a key priority for most organizations. **L'Oréal** Paris personalizes videos using insights on interests and affinities of the audience, as provided by Google's AI-powered platforms. Recently, L'Oréal created twelve versions of a YouTube video to appeal to each specific segment. This campaign showed an increase of 109% in brand interest and 30% in purchase intent[22].

> **AI connects customers in a whole new way, and the most impressive breakthroughs are at the dialog level 'machine-to-human.' However, while humans might quickly lose trust in flawed algorithms, many of us tend to trust machines more if they have human features.**
>
> *Claudio Crivelli, Director Innovation & Transformation, Salesforce*

AI-DRIVEN MARKETING MODEL

The conceptual framework presented in *Figure 5* defines the critical steps of an AI-driven strategy throughout its essential questions of what, how, and why to infuse ML into the sequential steps of a marketing process. Designing an AI strategy requires managers to systematically evaluate marketing needs in terms of automation, optimization, and augmentation in relation to the searched benefits of prediction, anticipation, and personalization. According to Cosimo Accoto, "AI is not only a technology added to the marketing technology stack. It is a starting point to re-imagine the nature and the objectives of marketing."

Seemingly managing relationships throughout a data-to-action-to-interaction sequence enables companies to predict behaviors, anticipate needs, and hyper-personalize messages. Modern marketers utilize user data to deliver hyper-individualized, -personalized, and -contextualized brand communications in which each subsequent message builds on the previous customer interactions.

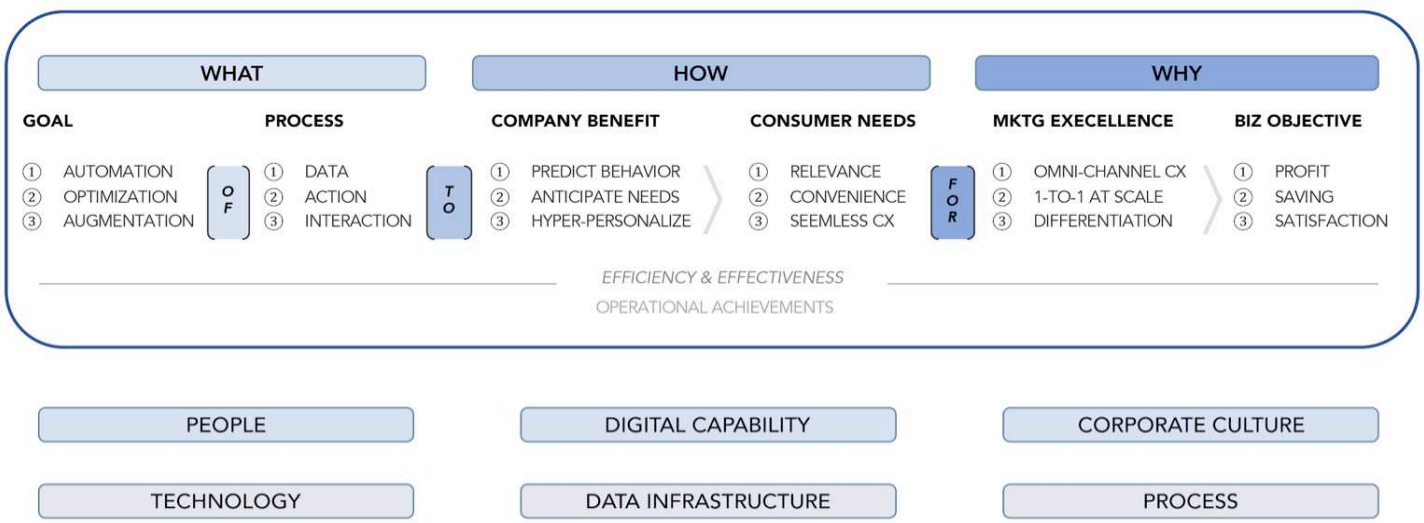
These interactions are seen not as a final stage of a consumer journey, but as a way to orchestrate future experiences in a satisfactory virtuous cycle. Furthermore, successful ML-powered companies turn data into seamless interactions with consumers, in a semi-automated and real-time fashion. These predictive and augmented experiences build deeper one-to-one relationships with consumers, improve omni-channel customer experience and drive product differentiation.

As Scott Brinker explained, "Overall, AI drives efficiency and effectiveness of the marketing organization. The advantage of automation, optimization, and augmentation is productivity. You can have a small team who, by leveraging this technology, can serve many more people, much more quickly, at a much lower cost. That's a very inward facing benefit, but it's a huge one. It's what a lot of companies are expecting from cognitive systems." A successful AI strategy can offer sustainable efficiencies only when built on robust technical *(technology, data, process)* and organizational *(people, capability, culture)* foundations.

> **Companies that combine the power of machines with employees who possess the right skillsets, to analyze the data and provide actionable recommendations, will be able to differentiate themselves and win customers.**
>
> *Annamaria Fato, Global Senior Market Development Manager, Zurich Insurance Company Ltd*

Managers need to strategically assess their marketing organization to redesign roles and responsibilities while adequately defining the division of tasks between humans and machines. In doing so, they are required to strike a balance between the level of human and machine effort injected into every relevant marketing step and alongside consumer journeys. Sven Blumenstiel suggested to, "get away from the mindset that personal touch is needed everywhere or, on the other hand, that complete marketing automation is the

Figure 5. AI-driven marketing model



ultimate goal. As a consumer, there are things that I value very much doing myself and others for which I require personal contact. Managers need to have a differentiated and selective approach to strategy design."

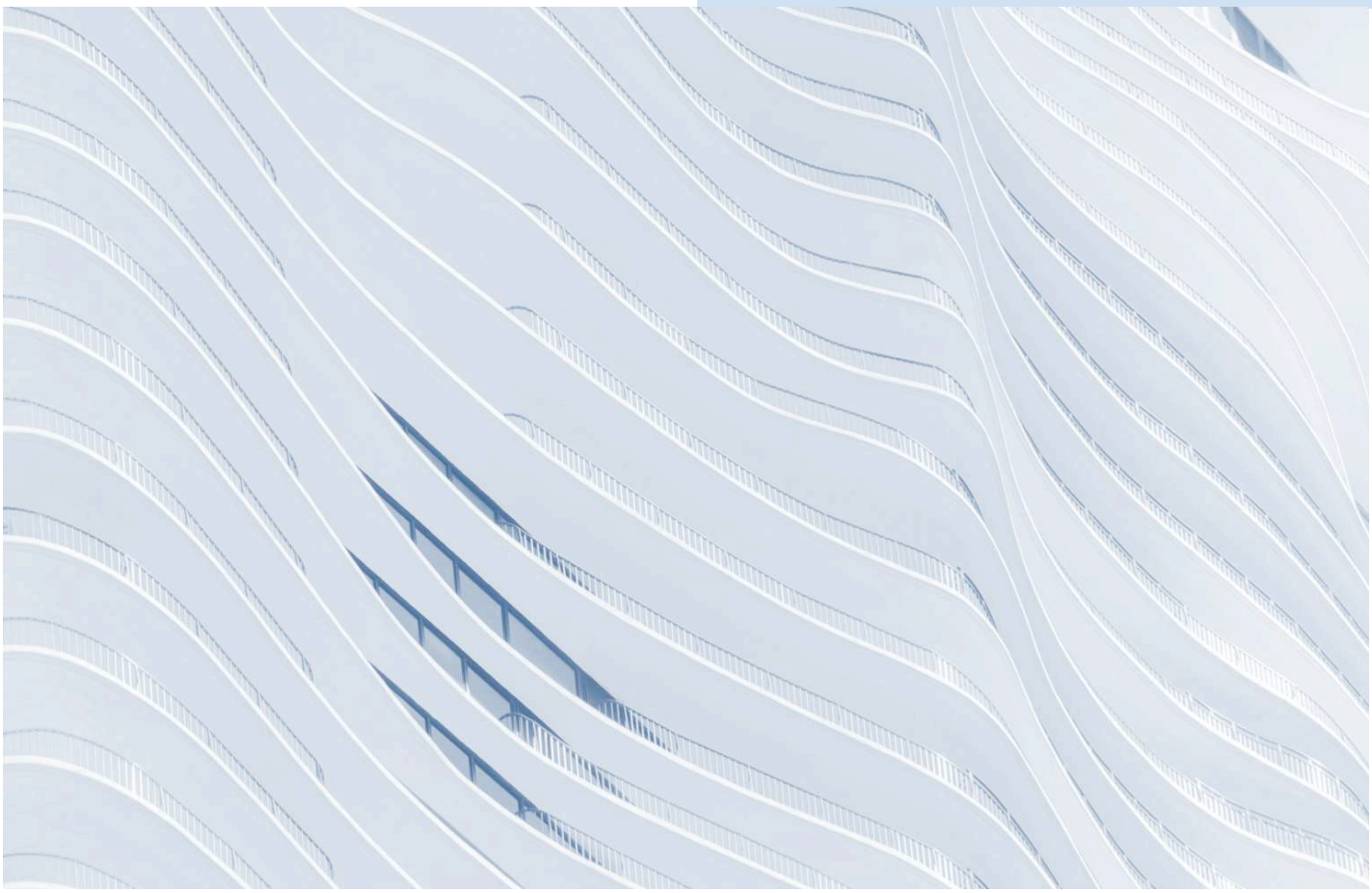
Imagine for a moment the effect of fully automating customer service, for instance using chatbots, in those organizations driven by "customer obsession", like Zappos.com. Clearly, AI is not always the solution and, in a future where more organizations become AI-oriented, the human touch might still guarantee a more sustainable competitive advantage.

At a strategic level, the ratio between human and machine-mediated interactions, dynamically affected by numerous internal and external events, allows companies to create highly differentiated service strategies. Like others, Scott Brinker wondered, "In the future, are businesses going to differentiate themselves based on the level of human touch they use?"

The human intervention in each workflow of data, action, and interaction is sometimes close to 100% while other times it is to zero, largely vary depending on the defined marketing goals. Experts agree that a balance between human and machine-driven activities is required. Online advertising is a canonical example. Human-driven optimization in terms of bidding, audience, and budget adjustments can, in fact, add an additional 15% campaign performance to the 20% AI-driven improvement[3].

In this respect, implementing an AI strategy is less about developing algorithms and more about building relationships that balance the strategic goals, processes, and benefits of AI-driven marketing.

> If you don't care about building a deep and honest relationship with consumers, maybe you should delegate that task to your AI.
>
> *German Ramirez, Founding Partner of The Relevance House*



METHODOLOGY

This report captures the insights and experiences of international experts, consultants, and AI-aware executives, as well as, secondary research. Semi-structured in-depth interviews were conducted both face-to-face and online over a period of 6 weeks until January 2019. Theoretical perspectives were not employed to facilitate the emergence of insights. A total of 32 interviews were audio-taped. Transcriptions were analyzed adopting an inductive line-by-line coding approach. Using NVivo 12, codes were grouped into themes and then re-evaluated to ensure that they reflect data extracts. At the end of the coding process, 20 main nodes and 76 sub-nodes remained. Key conceptual nodes were translated into a conceptual framework in *Figure 5* that illustrates the strategic areas in the implementation process of ML in marketing. My deepest gratitude to the following marketing, data, and IT experts:

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Photo credit: Daniel Kim on Unsplash.

c) Endnotes

1. Gartner "8 Top Findings in Gartner CMO Spend Survey," Chris Pemberton, November 5, 2018 (https://www.gartner.com/smarterwithgartner/8-top-findings-in-gartner-cmo-spend-survey-2018-19/)

2. ChiefMarTec "Marketing Technology Landscape Supergraphic (2019)," Scott Brinker, April 4, 2019 (https://chiefmartec.com/2019/04/marketing-technology-landscape-supergraphic-2019/)

3. BCG "The dividends of digital marketing maturity," Dominic Field, Shilpa Patel, and Henry Leon, February 18, 2019 (https://www.bcg.com/publications/2019/dividends-digital-marketing-maturity.aspx)

4. Hackernoon "A Map of Amazon and Modern Marketing," David J. Carr, September 11, 2018 (https://hackernoon.com/a-map-of-amazon-and-modern-marketing-372e1590b564ting)

5. Econsultancy, "Vodafone's chatbot is delivering double the conversion rate of its website," Ben Davis, October 11, 2018 (https://econsultancy.com/vodafones-chatbot-is-delivering-twice-the-conversion-rate-of-its-website/)

6. Think with Google "bol.com boost CPA 38% with automated bidding on Display & Video 360," November 2018 (https://www.thinkwithgoogle.com/intl/en-154/insights-inspiration/case-studies/bolcom-boost-cpa-38-automated-bidding-display-video-360/)

7. McKinsey & Company "How retailers can keep up with consumers," Ian MacKenzie, Chris Meyer, and Steve Noble, October 2013 (https://www.mckinsey.com/industries/retail/our-insights/how-retailers-can-keep-up-with-consumers)

8. Inside Big Data "How Netflix Uses Big Data to Drive Success," January 20, 2018 (https://insidebigdata.com/2018/01/20/netflix-uses-big-data-drive-success/)

9. Gartner "Gartner Says 25 Percent of Customer Service Operations Will Use Virtual Customer Assistants by 2020," February 19, 2018 (https://www.gartner.com/en/newsroom/press-releases/2018-02-19-gartner-says-25-percent-of-customer-service-operations-will-use-virtual-customer-assistants-by-2020)

10. P&G "Olay Unveils Global Skin Analysis Platform Olay Skin Advisor – The First-Of-Its-Kind Application of Deep Learning in the Beauty Industry," February 27, 2017 (https://news.pg.com/press-release/pg-corporate-announcements/olay-unveils-global-skin-analysis-platform-olay-skin-adviso)

11. VentureBeat "How Olay Used AI to Double its Conversion Rate," Matt Marshall, July 19, 2018 (https://venturebeat.com/2018/07/19/how-olay-used-ai-to-double-its-conversion-rate/)

12. Uber Engineering "Engineering More Reliable Transportation with Machine Learning and AI at Uber," Chintan Turakhia, November 10, 2017 (https://eng.uber.com/machine-learning/)

13. Lowe's Innovation Labs (http://www.lowesinnovationlabs.com/lowebot/)

14. Capgemini "Turning AI into concrete value: the successful implementers' toolkit," September 2017 (https://www.capgemini.com/consulting-de/wp-content/uploads/sites/32/2017/09/artificial-intelligence-report.pdf)

15. Salesforce "Salesforce Delivers the Next Generation of Service Cloud Einstein," July 11, 2018 (https://investor.salesforce.com/about-us/investor/investor-news/investor-news-details/2018/Salesforce-Delivers-the-Next-Generation-of-Service-Cloud-Einstein/default.aspx)

16. BCG "Profiting from Personalization," Mark Abraham, May 8, 2017 (https://www.bcg.com/publications/2017/retail-marketing-sales-profiting-personalization.aspx)

17. Vesanen, J., & Raulas, M. (2006). Building bridges for personalization: a process model for marketing. Journal of Interactive Marketing, 20(1), 5-20.

18. Adomavicius, G., & Tuzhilin, A. (2005). Personalization technologies: a process-oriented perspective. Communications of the ACM, 48(10), 83-90.

19. The Guardian "Study: less than 1% of the world's data is analysed, over 80% is unprotected," John Burn-Murdoch, December 19, 2012 (https://www.theguardian.com/news/datablog/2012/dec/19/big-data-study-digital-universe-global-volume)

20. The Economist "How Germany's Otto uses artificial intelligence," April 12, 2017 (https://www.economist.com/business/2017/04/12/how-germanys-otto-uses-artificial-intelligence)

21. Forbes "Netflix Used Big Data To Identify The Movies That Are Too Scary To Finish," Bernard Marr, April 18, 2018 (https://www.forbes.com/sites/bernardmarr/2018/04/18/netflix-used-big-data-to-identify-the-movies-that-are-too-scary-to-finish/#2b343fdb3990)

22. Think with Google "L'Oréal dare to trust data as they bring the power of customisation to scalable branding campaigns," October 2018 (https://www.thinkwithgoogle.com/intl/en-154/insights-inspiration/case-studies/loreal-dare-trust-data-they-bring-power-customisation-scalable-branding-campaigns/)